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ABSTRACT

This study examines the advocacy of education for sustainability in a contemporary world driven by the powerful forces of globalization and development. A brief overview of the current ecological crisis in the world is presented, and concerns about environmental degradation, social injustice, and social inequalities are discussed. The vision of education for sustainability is examined as a way of improving the balance between humanity and habitat and making the world more just and equitable for all people. Finally, the study examines how the design of the schooling process tends to obstruct and weaken efforts to establish education for sustainability as a primary educational direction in the modern school. (KHR)

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Education, Globalization and Sustainable Futures: Struggles Over Educational Aims and Purposes in a Period of Environmental and Ecological Challenge

by R.V. Farrell (FIU) and George Papagiannis (FSU)
CIES Conference, Orlando, Fl. March 6-9, 2002

It is always difficult to write a paper on educational purpose. Since formal educational purpose is so dependent on context--culture, time frame, type of school, etc.-- it is always a challenge to reach a consensus or agreement with audiences and readership. Perhaps this paper will be different, however, since it deals with a more or less unique educational purpose--one that is holistic, ecological and environmental. Our primary question is whether schools can contribute to a more sustainable future for the interconnected natural and social environments that make up the earth. How can human diversity and natural diversity survive and prosper in a socially just and equitable world, where diverse human aspirations are satisfied while not compromising the possibility of future generations from satisfying their own diverse aspirations and needs? In short, can the world of the future be as good, if not better, more secure and more sustainable, than the world of the present? And what does school have to do with it? Advocates of education for sustainability (also known as "education for sustainable development," "education for sustainable futures," etc.) want to use schools to provide the knowledge, skills and dispositions needed to embrace and work towards a vision of ecological and social sustainability.

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This paper will examine the advocacy of education for sustainability in a contemporary world driven by the powerful forces of globalization and development. First, a brief overview of the current ecological crisis in the world will be presented. Concerns about environmental degradation, social injustice and social inequities will be reviewed. The statistical realities of the current moment are startling to those who have never considered that over 3 billion of our fellow humans "survive" on less than $3 dollars per day, and an equal number have never made a telephone call. Next, the vision of education for sustainability (EFS) will be examined as a way of improving the balance between humanity and habitat, as a way of making the world more just and equitable for all peoples. This vision is said to be in process and an education in transition with certain regions and nations in the world far more advanced than others in their enlightened recognition of environmental and social concerns and proposed solutions through EFS. Finally, the third section will examine how the very design of the schooling process, in terms of purpose, process and content, tends to obstruct and weaken efforts to establish EFS as a primary educational direction in the modern school. The ecological, holistic and environmental thinking needed as a basic foundation for EFS is seldom found in schools. The aims and purposes of education that promote a western model consumer/producer culture and supply the human cultural capital needed in a rapidly evolving global economy do not favor EFS. According to some vocal critics, modern schooling's contribution to globalization and development even reinforces unsustainable values like progress, growth and materialism that are the root cause of the world's current environmental crisis. Understanding the world from a more ecological, holistic and environmental perspective is vital in the achievement of a better balance between humanity and the earth ecosystem. Overcoming school-based obstacles so formal education can take the lead in shaping and moving humanity towards a more just, equitable and sustainable world is the ultimate challenge for contemporary teachers and educators.

The Existence and Implications of the Current Ecological Crisis

All too often, given the alarming assertions of the past, environmentalists are portrayed as the little boy who cried "Wolf!" just too many times. Life continues and everything seems OK!...Right? Wrong! 911 was of course a wake up call for Americans. Why did such a thing happen? How can a group of people hate so much that they are willing to die for their cause. Perhaps this hate stems from the way the world works in favoring those who "have" over those who "have not." America is very much envied, feared and disliked in the world. A mere 4% of the world's population, as a nation America consumes 25% of the world's energy resources. As such a giant consumer, this nation is a major factor in humanity's pressure on the carrying capacity of the earth. Such pressure is in fact real and it is summarized in several hard-hitting research studies that have appeared in the last 10 to fifteen years. For example, research continues to demonstrate that humanity utilizes for itself over 40% of terrestrial primary productivity or the energy production of the photosynthesis cycle (Catton, 1987; Daily and Ehrlich, 1992; Vitousek, et.al, 1997). The ecological footprint research of Wackernagel and Rees (1996) reveals that very diverse amounts of land and water area are needed to support the different types of lifestyles of individuals, cultures and nations throughout the world. In this research, the average American needs 5.1 hectares of land for the energy production and waste absorption inherent in the American consumer lifestyle. The average citizen of India requires 0.4 hectares per person. In the world, there are only 1.8 hectares of productive land and water for every living person. There appears to be an obvious problem if everyone aspired to live like the average American.

So much other research indicates that the world is very skewed between have and have not, and that growing human populations are putting inordinate pressures on the Earth's carrying capacity to support life as we know it. The developed world, with just about 20% of the world's population, possesses just about 85% of the world's wealth and income, uses about 88% of the world's natural resources to support its consumer/producer lifestyle, and generates over 75% of the world's pollution and waste (Miller, 2000). Not much seems to be left for the 80% of the world's population that live in developing countries. However, so many of these people aspire to imitate the developed world. The implications of this aspiration are alarming since it appears that if all of humanity consumed natural resources and emitted carbon dioxide at the same rate as the average citizen of the world's developed economies, two more earths would be needed for energy production and waste absorption (Living Planet Report 2000).

The dilemma facing humanity in the contemporary moment is apparent. Economic growth continues to be the preferred solution among world leaders to resolve the differences between the life chances of citizens of developed versus developing worlds (Meadows, 1999). The negative implications of this growth, however, are clearly exposed in the ecological footprint research referred to above. Furthermore, it is apparent that environmental degradation and destruction are inevitable results of economic growth. Global indicators of a worsening environmental crisis frequently appear in popular media. The last decade has experienced the warmest years on record since world temperatures began to be recorded in the 19th century. The UN's Intergovernmental Panel on Climate Change recently indicated that global warming in the 21st century will go far beyond what was originally thought. More severe natural disasters, melting glaciers and rising oceans are the inevitable result. The litany of environmental degradation, largely from economic growth, can go on and on. The current Sixth Extinction being faced by species on the earth is

directly connected to the habitat destruction, pollution and global warming associated with a widening global economy. Acid rain, ozone layer destruction, deforestation, expanding deserts and soil erosion, the alarming population crashes of fish stocks throughout the world—all these environmental problems and impacts can directly or indirectly be tied to a modern development process that reinforces values stemming from the Industrial Revolution that are unsustainable (Bowers, 1997 and 2000).

The economic growth model espoused by the west to resolve the issues of poverty, starvation, social and economic injustice, is not sustainable given the limits imposed by the earth's finite supply of resources, and the limited environmental ability to absorb, detoxify and recycle the waste products of economic growth (Miller, 2000). However, the social reality of the current human population on the earth is also unacceptable. A web site based on Donella Meadows original version of the "Global Village" is currently circulating among environmentalists and friends. This web site, entitled *The Miniature Earth* (http://www.luccaco.com/terra/terra.htm) combines graphics with a very powerful text to underline the distorted and unacceptable nature of the present human world. Collapsing the world's population into 100 people, it is asserts that 6 of these people own 59% of the world's community wealth, 80 live in poverty, 14 cannot read, 33 die annually of famine, only 7 have a higher education and 8 own a computer. It goes on to say that if you keep your food in a fridge, your clothes in a closet, have a roof over your head and sleep in a bed, "you are richer that 75% of the entire world population." If the inequity and socially unjust nature of this picture cannot be resolved through economic growth without inevitably destroying the earth, what is the solution? For growing numbers, the solution is sustainable development and an educational vision and consciousness that supports such development.

Education for Sustainability, Sustainable Development, and Sustainable Futures.

Sustainable Development as a concept has matured and evolved over the last 20 years as a possible alternative to economic growth as the only way to achieve economic and social progress in the world. Probably the most well known definition of this concept appeared in the 1987 report of the UN Commission on Environment and Development entitled *Our Common Future*. This report, also know as the Brundtland Report, defined sustainable development as "...development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (UNCED). A few years later, in 1991, three international conservation/environmental organizations recognized the essential goal of sustainable development to be "...improving the quality of human life while living within the carrying capacity of supporting ecosystems." (IUCN, WWF, UNEP, 1991)). Finally, *Agenda 21*, the action agenda of the UN Conference on Environment and Development held in 1992, recognized the importance of sustainable development in assuring that humanity lived a healthy and productive life within the limits of nature. Both formal and non-formal education were seen as essential in the shaping of "environmental and ethical awareness, values and attitudes, skills and behavior consistent with sustainable development." (Agenda 21)

Needless to say, sustainable development and education that encourages this vision are contentious. Advocates of education for sustainability (EFS) believe that the challenges of the present and future require a much more ecological and holistic perspective. Such a perspective is not easily found in modern schooling. Too often, if not always, school curriculums are fragmented and compartmentalized around subjects and specified times. They tend to reinforce a discipline-oriented approach to problem solving, as opposed to an interdisciplinary approach. By

definition, EFS needs to be interdisciplinary since all aspects of the human condition need to be taken into consideration in the transition towards a different world—a world of diverse human cultures that are sustainable ecologically, socially, economically, and politically. Ecological sustainability means that diverse cultures are able to survive within the carrying capacity of their local and regional environments. Biological and cultural conservation are both implicit and explicit in such sustainability (Bowers, 2001). Social sustainability involves a reasonable balance in population growth and a stabilization of humanity's anthropogenic demands on the environment. Sustainable economics entails the acceptance of a more balanced and redistributive growth pattern and a more qualitative, less quantitative definition of development. Such development without growth requires a zero-growth, steady-state approach to economics that is at odds with almost every thing that is seen as essential in the modern consumer culture, including idea that more is better (Daly, 1996). Finally, political sustainability means global security for individuals and groups to exercise their human rights under their chosen forms of government. Given the current world tensions and conflicts over natural resources and cultural/religious beliefs such a sustainable world seems to be out of the question.

Advocates of EFS, however, believe that schools can and must contribute to the achievement of what have been called the principles of sustainable living (Fien, 1993) Such principles imply that all humans, as a species, recognize that they are part of a community of life in which the natural world is inseparable from the social world (Dewey, 1916). Too often humans believe that they are above nature, somehow superior due to their reason and intelligence, or the other extreme, that they are completely at nature's mercy. Humanity clearly represents an organism in a natural environment (the biosphere) that needs to protect its environmental basis of life—the so-called ultimate means or natural capital on which all life depends (Meadows, 1998). It is obvious that all

life forms (biodiversity) and life support systems need to be respected and conserved given their importance for human survival (Eldredge, 1998; EOLSS). Furthermore, advocates of EFS believe that all humans have equal rights to a healthy and fruitful life, and that all people should protect the rights of others to life, liberty and security. Such rights are also seen as inherent in the needs and wants of future generations. Conservation and protection of natural resources are called for in order to guarantee that these future generations have the same or equivalent life chances as those who are enjoying the present. Finally, advocates of EFS see actions to achieve a more sustainable world as involving both the individual and the collective and as transcending all cultural, political and economic differences.

Needless to say, so much of the knowledge, skills and dispositions that are implied in education for sustainability seems to be at odds with the purpose, function and results of modern schooling. Schools that perpetuate the western mindset too often reinforce a very anthropocentric attitude among students that somehow makes them feel superior to or above nature. Such schools tend to perpetuate the attitude that natural resources are free and inexhaustible (that the earth is finite is not a popular idea in modern schooling!) and primarily for human consumption. In this world of modern technology students too often believe that technology can resolve all problems without appreciating the unanticipated consequences of technology that result in environmental degradation and pollution. Finally, students so often look on a good education as meaning a good job, good money, and good things (Gatto, 1992). Such an attitude perpetuates the modern consumer/producer culture that sees materialism and excessive materialism as the primary means of human self-actualization.

The vision of education for sustainability implies and verifies the interdependence of humanity and habitat, a recognition of the ecological crisis facing humankind, and the importance of environmental justice and human rights. It calls for serious study and understanding of the human impact on the earth that is resulting in global warming, climate change, and a most serious biodiversity crisis known as the Sixth Extinction. The rapid expansion and globalization of the human enterprise, in the form of an insatiable consumer/producer culture, bears much of the blame for this current situation. A more sustainable path calls for a shift in thinking away from the growth values that dominate the present. It requires the restoration of more self-reliant and mutually supportive human characteristics that have existed in past eras. The dominant aims of growth and quantitative development, which epitomize modernity, above all must be replaced by a more balanced, steady state existence of humanity in nature. To do this, education for sustainability must play a very significant role in changing human consciousness. The difficulty of achieving such a noble end through formal education, given the very design and nature of schooling, is the subject of the next and last section of this paper.

Obstacles and Barriers to EFS in the Modern School

Several years ago, David Orr wrote that a citizenry had to be "educated into existence" that would be able to lead humanity towards a more balanced relationship with earth and its carrying capacity (1996). The ecological and experiential knowledge, skills and values inherent in such a citizenry, unfortunately, seem to be at odds with so many of the purposes and functions of schools. For example, it has been pointed out that the experiential thinking needed to recognize the environmental crisis is not reinforced in schooling. (Huckle and Sterling, 1996) The abstract knowledge that is so important in schooling decontextualizes students from their experiences in

local communities and detaches or separates them from the natural world and its problems (Smith, 1992). Knowledge is very fragmented in schools through independent subjects and specified times. Such fragmentation does not encourage the holistic and ecological thinking needed for Orr's citizenry. Sterling points out that the economic, work-related, and anthropocentric values reflected in so many curriculum and teaching approaches do not contribute to sustainable thinking about sustainable futures (Sterling, 1996 and 2001). Practically all aspects of the curriculum and instruction process work to perpetuate resistance to such thinking.

The very nature of schooling as a conservative institution, with its reflection and reinforcement of the status quo, can be an insurmountable obstacle to education for sustainability. Schools, in effect, perpetuate the system of which they are a part, whether it is a religious system, a cultural system, or a global system. In the modern development context, most schools continue to reinforce a growth model based on consumption and production with little concern about the cost of economic externalities absorbed by nature. While there are calls to rewrite our economics texts, resource economics is far from being universal fare in school curriculums and programs of study (Eldredge; Constanza). A primary purpose of schooling continues to be human capital development to meet the growth and development needs of national and global economies. Even an introductory appreciation of the very finite nature of the earth through knowledge of the First and Second Laws of Thermodynamics is far from universal. Such knowledge can obviously be quite controversial and is therefore difficult to find among the general knowledge emphasized in schools.

The very core beliefs that are perpetuated through modern schooling serve as barriers to education for sustainability. They too often epitomize a western lifestyle which elevates the individual in his

or her quest for excessive material satisfaction in a world unprepared to meet such demands. The consumption and production goals of the western model of progress are unsustainable, but so much in schooling persists in shaping human needs and wants in terms of material accumulation. Accumulation of wealth and income is the standard used to measure development progress, but as seen above, there is an incredible concentration of wealth and income in the world that separates the minority "have" from the majority "have not." While GNP and GDP continue to be used as measures of individual and group well-being, many work to be poor in the developed world while too many are excruciatingly poor in the developing world. Awareness of this situation should raise serious questions about economic growth alone as the solution to all of humanity's problems, but such knowledge is seldom emphasized outside of very specialized programs.

Growth persists as the guiding standard towards progress and a better world. Even a simple mathematical calculation demonstrates the unsustainable nature of such guidance. If the world economy grew at a relatively modest rate of 2.5% per annum for one thousand years, it will have grown ten thousand million times by the year 3100 (Bohm and Edwards). This is what is known as exponential growth. How many worlds would be needed to supply the natural resources and capital to support ten thousand million times the current 30 plus trillion dollar annual global economy? It's anyone's guess. But David Bohm has at least a partial answer based on a change in our perception of human needs and wants. He says "…it makes no sense to go on giving growth such a high priority…What is of primary importance is to have a healthy ecological balance in nature and a good quality of life for everyone…we can live without [growth] as long as we don't make…material products the main point of life." (Bohm and Edwards)

There are many more barriers and obstacles to EFS in modern schooling and education. The challenge of overcoming these barriers and obstacles should be among the major goals of advocates of education for sustainability if they hope to achieve the levels of ecological, holistic and environmental understanding needed to guarantee a more sustainable future for all of humanity. Schools and their continued reinforcement of values and processes that support the globalization of the west's unsustainable, consumer/producer lifestyle, are considered by many as part of the "problem," just as many see EFS as part of the "solution." The difference between needs and wants, quantity and quality, should be part of academic teaching and learning at all levels of education. "How much is enough?" is a question that needs to be answered seriously in a world which is a closed, finite system and which has become humanity's ecosystem. Curriculum and teaching that supports EFS need to be encouraged in order to raise human consciousness about the current moment in human history. No matter how you stand on this matter at present, perhaps returning to 911 and a quote from Wendell Berry will be helpful in trying to reach a consensus on the role of schooling and education in the contemporary era. On October 11, 2001, Berry wrote:

> …The complexity of our present trouble suggests as never before that we need to change our present concept of education. Education is not properly an industry, and its proper use is not to serve industries, neither by job-training nor by industry subsidized research. Its proper use is to enable citizens to live lives that are economically, politically, socially, and culturally responsible. This cannot be done by gathering or "accessing" what we now call "information"—which is to say facts without context and therefore without priority. A proper education enables young people to put their lives in order, which means knowing what things are more important than other things; it means putting first things first…The first thing we must begin to teach our children (and learn ourselves) is that we cannot spend and consume endlessly. We have got to learn to save and conserve…An economy based on waste [and excess] is inherently and hopelessly violent… (http://www.girstmagazine.com/grist.imho/berry101101.asp)

Welcome back to the current moment, the war on terrorism and the hate of bin Laden…

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